

Cost of Flood Fighting Products

Even if a product performs well, the flood fighting community isn't likely to use the product unless it is cost effective. In order to make a fair comparison of costs, each product vendor was asked to submit the cost of constructing and removing 1000 linear feet of their product, 3 feet high in Vicksburg, Mississippi. This cost includes the purchase of the product plus fill material, labor, and equipment based on Vicksburg, MS rates. The cost for shipping the products were not provided. For this cost determination, sand fill delivered to the site was estimated at \$8 per cubic yard. Labor rates were \$8 per hour for laborers and \$12 per hour for equipment operators. The attached table provides a summary of the provided costs.

The costs contained in the table for the sandbag structure were based on several assumptions. Those assumptions include a structure section that is 13 bags wide at the base and 2 bags wide at the crest with each sand bag adding 3 inches in height and 9 inches in length to the structure. The assumed cost of each sandbag was \$0.25. The required volume of sand was increased by 20 percent to account for waste and spillage during filling. No labor cost was included for construction of the sandbag structure since sandbag structures are typically built by volunteer and/or prison labor.

The cost for the Portadam product varies with changing steel prices. The cost contained in the attached table is based on the November 2004 steel prices. While both Portadam and Hesco Bastion products are reusable, neither company provides a guarantee that would provide for no cost replacement of damaged product.

The costs provided for RDFW are based on its first time use. Geocell guarantees the RDFW product for three uses. Therefore, RDFW also provided the expected costs for two subsequent uses. Since the product is reusable, the second and third uses do not include any cost for purchase of the product. However, Geocell Systems does include a recertification fee that is equal to 10 percent of the initial purchase price. This fee provides for Geocell to inspect and certify that each unit is reusable. All unusable pieces are replaced at no additional cost. Since the furnished purchase price for the RDFW product was \$151,525, Geocell Systems would charge \$15,153 to inspect and replace damaged pieces prior to the second and third uses. As can be seen in the attached table, the cost for construction and removal of the structures is minimal compared to the cost of purchasing the products. The table also shows a large range in the purchase price of the three products. The purchase price quoted by the vendors ranged from \$26,398 for 1000 linear feet of the Hesco Bastion product to \$151,525 for the RDFW product. The purchase price of the Portadam product was quoted at \$71,300.

Vendor Furnished Cost for 1000 Feet Long, 3 Feet High Flood Fighting Products Constructed In Vicksburg, MS				
Item	Portadam	Hesco Bastion	Sandbags	RDFW
Product Purchase	\$71.30 per linear foot = \$71,300.	\$394.00 per 3'x3'x15' unit = \$26,398.	\$0.25 per bag for 120,000 bags = \$30,000	\$95.00 per 4'x4'x8" unit = \$137,750 \$47.50 per 4'x2'x8" unit = \$13,775
Total	\$71,300	\$26,398	\$30,000	\$151,525
Shipping	No Cost Provided	No Cost Provided	No Cost Provided	No Cost Provided
Construction				
Laborers	8 men for 8 hrs = \$790.	6 men for 20 hrs = \$960.	Built by volunteer labor = \$0	50 man hours = \$400
Operators	None Required	2 men for 20 hrs = \$480.	None Required	9 man hours = \$108
Equipment	Forklift and Trenching Machine	2 loaders for 2 days = \$1,300	Sandbagger provided by COE	2 loader days = \$650
Fill	Some Sandbags	425 cubic yards = \$3,400	800 cubic yards = \$6,400	548 cubic yards = \$4,383
Removal				
Laborers	8 men for 8 hrs = \$790.	6 men for 20 hrs = \$960	None	100 man hours = \$800
Operators		2 men for 20 hrs = \$480	2 men for 16 hours = \$384	18 man hours = \$216
Equipment	Forklift	2 loaders for 2 days = \$1,300	2 loaders for 2 days = \$1,300	4 loader days = \$1,300 Hand tools = \$200
Training By Vendor for Installation and Removal	No \$ Provided	No charge for initial installation	By COE or Local Sponsor Volunteers	For initial installation only = \$10,433
Technical Support During Installation and Removal	No \$ Provided	No charge for initial installation	By COE or Local Sponsor Volunteers	Per Installation = \$23,987

Subsequent to completion of the laboratory and field-testing in 2004, the decision was made to conduct pilot testing of the temporary, barrier type flood fighting products at several locations around the county. This pilot testing would provide an opportunity to evaluate product performance under different conditions than those experienced at the Vicksburg Harbor field-testing site. For the pilot testing, 5000 linear feet, 4 feet high of each of the tested products were purchased in January 2005. Provided below is a table that summaries the purchase costs.

Cost of 5000 Feet Long, 4 Feet High Flood Fighting Products For Pilot Testing January 2005				
Product	Description	Number of Units	Unit Price	Purchase Price
Hesco Bastion	P-4315 Flood Barrier (4ft x 3ft x 15ft)	336	488.00	\$163,968.00
RDFW	4ft x 4 ft x 8 in units	8700	95.00	\$826,500
Portadam	4ft frames, liner, hardware	Job	Job	\$473,594.70